

# Ronald L. Beck

## Project Manager (Engineering and Construction)

### Technical Qualifications

- Over 43 years of nuclear experience, including 17 in design engineering and licensing, 18 on SGR and RVHR projects, and 5 in next-generation nuclear (EPR, SMR) project management
- Registered Professional Engineer in Maryland (retired); inactive in Mississippi, South Carolina, Tennessee, Texas, and Virginia
- Member of ASCE, ASME
- Author of several published technical papers (available on request)

### Education

- ME, Civil Engineering, Virginia Polytechnic Institute (Structural Engineering Major)
- BS, Civil Engineering, Virginia Polytechnic Institute
- Bechtel Certification, Project Manager Level II

Ron Beck has spent his entire career in the nuclear power industry. He has a strong civil engineering background and many years of design engineering and field experience, with a solid foundation in the details of work planning and execution. He was project manager for three steam generator replacement (SGR) projects, assistant project manager for one SGR project, and shift outage manager for two reactor vessel head replacement (RVHR) projects. His background also includes civil design work on Grand Gulf, South Texas Project, and Watts Bar. He is a highly dedicated leader with strong technical skills, effective management capabilities, and the ability to motivate teams to successful outcomes.



### Project Manager, Generation mPower Small Modular Reactor

**2011–Present:** For the Generation mPower (GmP) small modular reactor (SMR) project, Mr. Beck has been responsible for all aspects of Bechtel's scope and project execution and for interface with Generation mPower LLC and Babcock & Wilcox (B&W), as well as potential customers, Industry Advisory Council members, management committee members, and regulatory agencies. His responsibilities include overall management of 230+ professionals, including engineering, licensing, project cost and schedule, procurement and contract functions.

### Project Engineering Manager, Generation mPower Small Modular Reactor

**2010:** For the GmP project, Mr. Beck managed the Bechtel engineering team and the integration of Bechtel's scope with B&W's Nuclear Island scope.

### Project Manager, Various Commercial Nuclear Projects

**2010:** Mr. Beck participated in a due diligence assessment as project manager, civil/structural reviewer, construction reviewer, and overall report preparer. The report outlined the results of the assessment regarding investing in a specific new generation nuclear technology.

**2008–2010:** Mr. Beck was the responsible project manager for the Bell Bend US EPR nuclear power plant project. He supported AREVA's preparation of responses to the NRC's requests for additional information in conjunction with the design certification process; managed an optimization study; participated in construction schedule development; worked with customer on updating the site utilities plot plan for its Combined License application; and oversaw the development of budgets, schedules, and reports.

**2008:** Mr. Beck oversaw the development of the long-range strategic plan for the SONGS SGR project. The work involved developing the pre-outage schedule encompassing Bechtel's work from 2008 through 2010 and the Cycle 15 and Cycle 16 (SGR) outage schedules for Bechtel's work and integrating these schedules into the client's online and outage work schedules.

**2007:** For the Palo Verde Nuclear Generating Station Unit 1 SGR project, Mr. Beck managed all aspects of removing and relocating the V651 valve in the reactor coolant system ASME Class 1 shutdown cooling line to support long-term plant operability and reliability.

**2006–2007:** As plan coordinator for the SONGS SGR project, Mr. Beck managed the development and submittal to the client of 50-plus management, engineering, and construction plans and 30-plus specific contract deliverables describing the methods and approaches Bechtel would employ to execute its SGR work scope. He also supported the project manager on project commercial and technical issues.

**2005:** For the Palo Verde Unit 3 SGR project, Mr. Beck managed the installation of a vortex elimination plate in the reactor coolant system ASME Class 1 shutdown cooling line. The plate was later removed as a result of system testing.



**2004–2005:** Mr. Beck managed or supported proposals for the Turkey Point Units 3 and 4 and St. Lucie Units 1 and 2 RVHR projects; the Crystal River Unit 3 SGR project; the Bruce A Units 1, 2, 3, and 4 SGR projects; the Diablo Canyon Units 1 and 2 SGR projects; the SONGS Units 3 and 4 SGR projects; the SONGS Units 2 and 3 and Palo Verde Units 1, 2, and 3 RVHR studies; and the Palisades RVHR project.

#### **Shift Outage Manager, Surry Unit 1 Reactor Pressure Vessel Head Replacement (RPVHR)**

**2003:** For the Surry Power Station Units 1 and 2 RPVHR project, Mr. Beck interfaced with client, subcontractor, and Bechtel personnel to develop the schedule; attended client/Bechtel plan-of-the-day meetings; interfaced with client and Bechtel personnel on day-to-day operations, including action item meetings and task reviews; and managed Bechtel's day shift containment work during each unit's replacement outages.

#### **Project Manager, Various Steam Generator and Reactor Pressure Vessel Head Replacements**

**2002:** Mr. Beck managed several SGR project proposals, an RPVHR project study for two nuclear units, and an independent third-party SGR project cost estimate study review for a nuclear utility.

**1996–2001:** For the South Texas Unit 1 (1996–2000) and Shearon Harris (2000–2001) SGR projects, Mr. Beck had the same duties as for the V.C. Summer SGR project.

**1995–1996:** Mr. Beck developed generic SGR project core team operations and was a member of the team that developed a Bechtel/Westinghouse teaming agreement for SGR projects. He also developed competitively bid SGR projects and sole-source negotiated SGR awards, including the first South Texas Unit 1 SGR involving the Bechtel/Westinghouse agreement.

**1992–1994:** For the V.C. Summer SGR project, Mr. Beck directed all aspects of engineering, construction, procurement, quality assurance, fixed price cos, and schedule management and subcontractor interface; coordinated interfaces with the client and interfaced with Bechtel senior management, global and regional industry unit and execution unit management, and home office functional departments. During the SGR outage, Mr. Beck oversaw all aspects of the on-site construction activities and managed the development of the Bechtel portion of the outage schedule.

**1991–1992:** For the ASCO Units 1 and 2 SGR project, Mr. Beck managed photogrammetry and interference walkdowns, the redesign of the biological shield wall, preparation of the technical specification, and technical evaluation of replacement steam generator fabrication proposals. He also managed SGR studies for St. Lucie Unit 1 and for Mitsubishi Heavy Industries, Ltd. in Japan.

#### **Assistant Project Manager, Palisades Steam Generator Replacement Project**

**1989–1991:** For the Palisades SGR project, Mr. Beck provided management overview of the engineering team and management support to the cost and schedule supervisor for schedule and budget control. He assisted in coordinating Bechtel's client interface on licensing and other high priority issues and coordinated the development of the SGR outage schedule with the SGR project team (management, engineering, construction, procurement, subcontractors, and client). As night shift outage coordinator during the replacement outage, he coordinated Bechtel's night shift construction activities with the client and the client's contractors. During job closeout, he assisted the project manager and field services manager with closeout activities, including engineering as-built package completion, contract compliance closeout, outage work activity completion, and licensing and quality assurance review closeout.

#### **Project Engineering Manager, Watts Bar Unit 1**

**1987–1989:** Mr. Beck was the Project Engineering Manager for the Hanger and Analysis Update Program for Watts Bar Nuclear Station Unit 1. In this capacity, he oversaw all design activities associated with the update of the Watts Bar pipe stress analyses and pipe support designs, using a site walkdown team and design teams located in Oak Ridge, TN; Gaithersburg, MD; Houston, TX and San Francisco, CA.

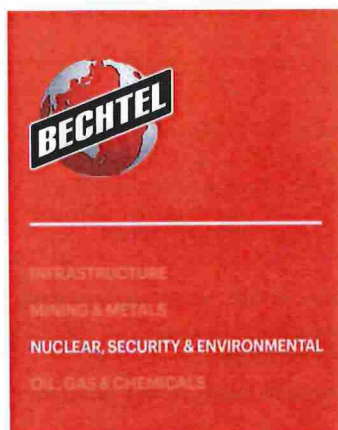
#### **Project Engineer, South Texas Project Completion**

**1986–1987:** For the South Texas Units 1 and 2 project, Mr. Beck supported the civil/ structural, pipe stress and pipe support, architectural, and plant design layout discipline design activities. He directly interfaced with the client in completing engineering design, licensing, and engineering assurance activities associated with these disciplines. He also assisted in managing the contractual and legal aspects of the project's main cooling reservoir; coordinated interfaces with the project's constructor and client and Bechtel management; and directed the coordination of engineering activities associated with Unit 1 hot functional testing, including development of engineering hot functional test procedures for thermal and vibration monitoring.

#### **Design Engineer/Group Leader/Engineering Supervisor, Grand Gulf Units 1 & 2**

**1972–1985:** Initially, Mr. Beck developed various preliminary design studies subsequently used for input to the PSAR and to project cost and final design studies. He reviewed cooling tower structural design calculations, wrote and administered a subcontract for cooling tower foundation piling installation, and wrote piping technical specifications. Later he supported various site engineering tasks and completion of final ultimate heat sink basin structural designs and assisted in managing group design activities. Subsequently, he led the design activities associated with the reactor containment building (RCB) and site and managed a specialized task force performing dynamic loading analysis of the BWR Mark III RCB. He supervised development of the FSAR sections associated with the RCB and other Seismic Category I site facilities. He participated in regulatory hearings with the NRC and the Advisory Committee on Reactor Safeguards in conjunction with the RCB dynamic analyses and assisting in supervising civil/ structural design activities. Ultimately, he was responsible for all civil/structural engineering design activities associated with Unit 2.





# Jonathon D. Burstein

## Project Controls Manager

### Education

- M.S., Construction Management, Virginia Tech University
- B.S., Civil Engineering, Virginia Tech University

Jonathon Burstein has over 11 years of cost engineering, planning, and scheduling experience, primarily on nuclear projects throughout the United States. He is well-versed in all aspects of project cost management, including budgeting, monitoring, and controlling cost. He has also developed and maintained project outage construction schedules and monitored critical path. Currently, he is responsible for managing project controls for the Beaver Valley Unit 2 Steam Generator Replacement (SGR) Project and prior to that, he spent 5 years on the Watts Bar 2 Completion Project.



### Project Controls Manager, Beaver Valley Unit 2 Steam Generator Replacement Project

**2013–Present:** Mr. Burstein manages the project controls team to monitor and control cost and schedule for the project, and is part of the project management team to help the Project Manager make informed decisions. Mr. Burstein developed the project controls plan and established tools for successful project execution. He also facilitated cross-training of cost and schedule personnel to further develop their skills. The team is currently managing cost and schedule for the engineering effort, with construction planning and support for Unit 2 outages.

**2015:** While managing project controls for Beaver Valley, Mr. Burstein also provided planning and cost support to new proposals for nuclear work, steam generator replacement projects, and combined cycle projects. Additionally, he provided planning support to a front-end assessment study for new nuclear construction work.

### Construction Cost Supervisor, Watts Bar Unit 2 Completion Project

**2012–2013:** Mr. Burstein supervised a group of up to 6 employees to manage construction costs. Group responsibilities included: daily craft hours monitoring, weekly QURR reporting and analysis, oversight of quantity reporting database, budget maintenance, trend initiation, and various interfaces with the construction organization. He also continued to perform the financial responsibilities listed below, such as PFSR, CWA's, and project budget monitoring.

### Cost Engineer – Financials/Craft, Watts Bar Unit 2 Completion Project

**2010–2012:** Mr. Burstein monitored the overall financial status of project, generated quarterly contract work authorizations (CWAs) for project funding and quarterly project financial status reports (PFSRs) for management, monitored actual expenditures against the project budget and forecast, and initiated construction trends as identified by cost tools. He generated monthly project reports for functional support to Frederick (project status reports, staffing, and gross margin) and provided other functional support as requested. He also supported craft cost controls as described below.

### Cost Engineer – Craft, Watts Bar Unit 2 Completion Project

**2008–2010:** Mr. Burstein maintained labor cost codes and monitored labor charges in eTrack, maintained budgets and incorporated new work order estimates in ePC Works (a tool for budgeting, monitoring, and controlling all aspects of cost for major Bechtel projects), and performed craft jobhour analysis. In addition, he generated weekly quantity unit rate report (QURR) and other reports as required, created quantity reporting database so that the field engineer could enter weekly quantities, and trained others in use of these systems.

### Area Scheduler, Watts Bar Unit 2 Completion Project

**2008–2008:** Mr. Burstein developed field engineering walkdown schedules and tracking tools and developed and maintained detailed construction schedules. He also acted as interim lead construction scheduler for a period of 2 months

**Field Planner, Palo Verde Unit 3 Steam Generator Replacement Project**

2007–2007: Mr. Burstein developed and maintained project outage construction schedules as the lead planner on day shift. He prepared daily reports for project status, manpower tracking, jobhour earnings, and critical path analysis and trained new planners on SGR scope, planning, and reporting.

**Field Planner, Comanche Peak Steam Generator/Reactor Head Replacement Project**

2006–2006: Mr. Burstein developed and maintained project outage construction schedules. Work included coordinating steam generator replacement project work activities, preparing daily reports for project status, manpower tracking, jobhour earnings, and critical path analysis, and he cross-trained with the Cost group on craft staffing, subcontracts, and work breakdown structure (WBS) tracking.

**Field Planner, Palo Verde Unit 3 N-1 Outage**

2006–2006: Mr. Burstein maintained project outage construction schedules as the backshift planner and assisted in schedule development for the Unit 1 valve modification.

**Planner, Comanche Peak Steam Generator/Reactor Head Replacement Project**

2006–2006: Mr. Burstein maintained project engineering schedule and developed project pre-outage construction schedule, prepared weekly status reports and monthly engineering progress and performance report (EPPR), assisted various projects with schedule maintenance, and worked part-time with AREVA New-Gen to develop engineering schedules.

**Field Planner, Palo Verde Unit 1 Steam Generator Replacement Project**

2005–2005: Mr. Burstein participated in vertical slice reviews for schedule development. Maintained project outage construction schedules and monitored critical path.

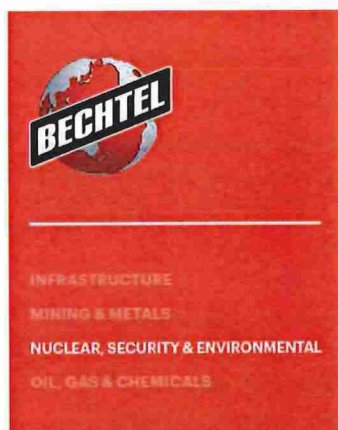
**Planner, Central Planning Group**

2005–2005: In this assignment, Mr. Burstein assembled proposal schedules and updated various project schedules as needed.

**Intern, Miami International Airport Expansion**

2004–2004: Mr. Burstein set up and maintained database for tracking and reporting work orders and created project cost and scheduling reports for project management





## Robert A. Exton

### Procurement & Contracts Operations Manager

#### Technical Qualifications

- Member, Original Lifetime Certified Purchasing Manager, Institute for Supply Management
- Bechtel Certification—Procurement Manager

#### Education

- B.S., Business Administration with Emphasis in General Management, Humboldt State University
- A.S., Forestry Science, North Dakota State University

Bob Exton, Procurement & Contracts Operations Manager for Nuclear Power, has 37 years of procurement experience working on nuclear, fossil, and telecommunications projects, with over half of that time in the nuclear power generation arena. He has held positions of increasing responsibility in various procurement managerial positions, including material management, purchasing and contracts formation, management, and commercial leadership.



#### Procurement & Contracts Operations Manager, Nuclear Power

**2008–Present:** In his current role, Mr. Exton is responsible for managing and monitoring procurement and contracts operations for all commercial nuclear projects. His main focus the past year has been the functional oversight of ongoing nuclear projects and proposal efforts, drawing upon past experience, lessons learned, and the Six Sigma philosophy. Additional focus has been on process improvement and procedures directly associated with commercial nuclear activity.

#### Program Procurement Manager and Deputy Program Procurement Manager, Cingular Wireless Project and the AWS Project

**2002–2008:** Mr. Exton was responsible for the procurement operations of these telecommunication projects, focusing on Materials Management. He was also responsible for the integration of the AWS project to the Cingular system and for ongoing procurement operations in support of the nationwide build program. This build program included eight markets with a staff of twenty, including material coordinators and a purchasing group.

#### Proposal Manager, Power Multi-Project Acquisition Group (MPAG)

**2000–2002:** Mr. Exton was involved with all proposal efforts for power projects and was the primary representative on project development teams assuring that Procurement supported the development schedule.

#### MPAG Commercial Lead, Balance of Plant and Electrical

**2000–2000:** Mr. Exton was responsible for managing and coordinating the buying activities in support of the power projects executed from the Power center of excellence.

#### Project Procurement Manager, Aleppo, Quezon, and Dabhol Projects/Nuclear Operations

**1991–2000:** Mr. Exton was responsible for developing, negotiating, and administering purchase orders and subcontracts for three fossil power projects in the Middle East and Asia. On the Aleppo Project, Mr. Exton was responsible for final equipment buyouts, expediting, inspection, traffic and logistics and shipment of remaining equipment and services.

Additionally, was involved in the development of new power plant construction projects.

In his Nuclear Operations role, Mr. Exton was responsible for coordinating procurement activities associated with North Anna Unit 1 SGR, V.C. Summer SGR, and FURNAS project and for the issuance and administration of major lump sum subcontracts.

#### Senior Contracts/Purchases Supervisor Specialist, Palisades Steam Generator Replacement

**1989–1991:** Mr. Exton was responsible for negotiating and issuing major lump sum subcontracts and purchase orders.

Robert A. Exton

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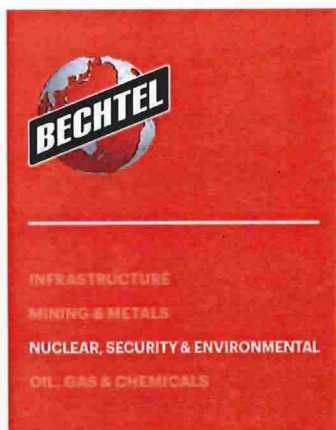
**Contracts/Purchases Supervisor Specialist, Limerick Nuclear Project**

1987-1989: Mr. Exton was responsible for coordinating purchasing activities, administering assigned blanket orders, and supervising closeout of home office contracts and field purchase orders.

**Contracts/Purchases Supervisor/Specialist Buyer/Spare Parts Supervisor/Warehouse Receiving Supervisor, Palo Verde Nuclear Project**

1978-1987: Mr. Exton was responsible for assisting in forecast planning, conducting training on procedures, and reporting progress to the client and engineering.





## Jason S. Moore

### Project Controls Manager

#### Education

- B.S., Business Management & Finance, Salisbury State University

Jason Moore has 17 years of project controls experience in the power generation construction industry, with well-rounded expertise in planning, construction; cost, estimating/proposal development, and subcontracts for both nuclear and fossil power plants. For the past 6 years, he has had positions of increasing responsibility on large-scale nuclear power projects, culminating in his current role as Project Controls Manager for Bechtel's on-going engineering services work at Southern Nuclear's three operating nuclear facilities in Georgia and Alabama.



#### Project Controls Manager, Southern Nuclear Engineering Services Project

**2013–Present:** Currently, Mr. Moore is responsible for all cost- and schedule-related functions, initiating and implementing project controls tools and programs, and providing technical direction to project controls personnel on this project that provides engineering services to Southern's three operating nuclear plants (Farley, Hatch, and Vogtle).

#### Project Controls Manager, Wolf Creek Essential Service Water Buried Pipe Replacement Project

**2011–2013:** Mr. Moore was responsible for all cost- and schedule-related functions, initiating and implementing project controls tools and programs, and providing technical direction to project controls personnel on this project that replaced over 30,000 lineal feet of underground and underwater piping that was deteriorating at the Wolf Creek Nuclear Plant. He provided day-to-day supervision to project controls personnel and interfaced with all functional groups to ensure compliance with execution strategy and objectives. He also provided status information and related analysis to the project manager, project controls operations manager, and project team, as well as interfacing with customers, contractors, and other outside personnel. Additionally, Mr. Moore led specialized studies and provided other specialized support to project and functional management, as required.

#### Shift Outage Manager/Assistant Project Controls Manager, Turkey Point 3 & 4 Extended Power Uprate Project

**2009–2011:** While assigned to the Turkey Point EPU project, Mr. Moore held a number of positions of increasing responsibility including:

- **Shift Outage Manager**—responsible for managing the "team room" for a 43-day outage with a peak craft headcount of 300, reviewing, modifying and driving the project schedule through the nuclear outage, interfacing daily with the plant management team, removing obstacles, and finding quick solutions to daily challenges and issues.
- **Assistant Project Controls Manager**—responsible for decisions and financial reviews, developing senior management presentation material on multiple occasions for client reviews, chairing multiple client review sessions ranging from trends to Level 3 vertical reviews, personnel management of project, staffing decisions, and employee development, attaining more balanced perspective between the cost and schedule functions, and actively participating in financial development and reviews.
- **Planning and Scheduling Supervisor**—responsible for providing direct supervision to eight employees, serving as one of the leads driving the U3R25 outage including analysis-based redirection, major recovery planning, and "team room" staffing, developing unique tools to simplify a complex planning project that is now used at all customer project sites.
- **Project Planner**—Field and Engineering, responsible for presenting the Project Controls status at the Monthly Progress Report to customer senior management, and scheduling lead for all aspects of

schedule development including engineering, construction, procurement, subcontracts, startup, and customer schedule integration.

- **Project Estimator**—responsible for developing a plan to provide an estimate to customer for all the EPU projects along with all the templates required to complete the task in a short duration, conducting onsite working sessions/presentations at each of the customer's project sites, in which Level 1.5 schedules with associated resources were developed, with the results serving as the basis for all the EPU estimates. Mr. Moore presented the estimate to Bechtel customer senior management.

#### **Project Planner, Midwest Generation Powerton Environmental Program Project**

**2008–2009:** Mr. Moore's responsibilities included scheduling lead for all aspects of schedule development including engineering, construction, procurement, startup, client, and OEM partner schedule integration on this project to install an air quality control system on a dual unit coal-fired power plant. He worked directly with project management, client management, and OEM management developing all levels of schedule (Level I, II, III, IV), implementing the use of Primavera 6.0 on the project.

#### **Project Planner, Sammis Air Quality Control System Retrofit Project**

**2008:** Mr. Moore provided direction and training to the onsite planning staff on this 2,200 MW coal plant, facilitating communication between the Bechtel and Client organizations through interactive white-boarding schedule development sessions. He led the planning effort of the main transformer installation and its related outage, discovering and fixing issues as they arose. He also developed a new tracking report to be used by Bechtel and Client management that tracked real-time data in association with bulk piping installation.

#### **Project Planner, Sutherland Project**

**2007–2008:** Mr. Moore supported the development of the initial estimate and schedule for this proposed power project, developing a level II schedule and supporting documentation to successfully convey project schedule viability, and presenting the overall plan to the project team and leading discussions on its future development including risks and challenges.

#### **Engineering Planner/Lead Planner, Oak Creek Expansion (Elm Road) Project**

**2004–2007:** As Lead Planner on Elm Road, a 1,300 MW two-unit EPC new build coal-fired power plant, Mr. Moore was responsible for coordinating and issuing the critical action items and chairing the CAI meeting. He provided technical direction to the lead engineering planner and supported field personnel. He also led a number of special studies and 'what if' analyses, as directed by the Project Director. He participated in the rebaselining of the construction schedule, developed multiple detailed schedule tracking tools to better define project goals, provided important analysis regarding the timing of cable deliveries to take advantage of the future reduction in the market price of copper, and developed the first startup level 3 detailed schedule.

As Engineering Planner, Mr. Moore was responsible for maintaining the Level I, Level II, and Level III schedules, creating and maintaining bulk commodity curves for Engineering releases and the project short-term work plan, analyzing entire schedule network to avoid potential issues with project deliveries, leading procurement activities to ensure timely delivery of materials by establishing delivery dates for material requisition, reviewing cost estimates and trends for schedule impacts, and developing and maintaining the Engineering Progress & Performance Report and the Engineering dashboard.

#### **Engineering Planner, Mountain View Combined Cycle Gas Turbine Project**

**2003–2004:** Mr. Moore's responsibilities included developing and maintaining the Level I, Level II, and Level III schedules, bulk commodity curves for engineering releases, and the project short-term work plan. He was also responsible for analyzing the entire schedule network to avoid potential issues with project deliveries, leading procurement activities to ensure timely delivery of materials by establishing delivery dates for material requisition, reviewing cost estimates and trends for schedule impacts, and communicating the overall project schedule to the project and client management.

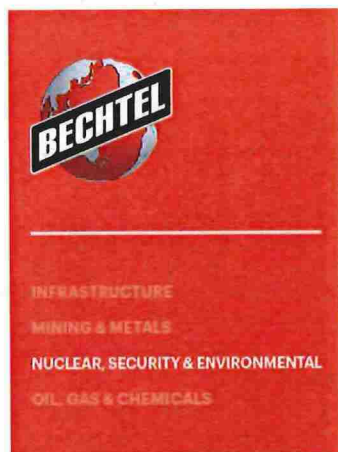
#### **Proposal Planner, Bechtel Power Project Controls Central Function**

**2000–2003:** Mr. Moore worked with business development managers and construction managers to assist in development of strategic positions of new proposals. He was responsible for developing the milestone summary schedules for management reviews during the proposal phase, developing Level II project schedules, developing and maintaining Level III P3 schedules, developing bulk curves and manpower curves, producing development schedules for pre-NTP phase and proposal phase, and maintaining comparison data for new proposals. Proposals ranged in value from \$300 million to \$3 Billion.

#### **Indirect Estimator, Bechtel Power Estimating**

**1998–2000:** Mr. Moore was responsible for developing craft wage rates, supporting the development of manual distributable costs, developing home office costs, tracking metrics for proposal costs and services estimates, gathering data for quantity and jobhour comparisons, supporting the preparation of proposal review packages, developing proposal cashflows and proposal profitability summaries, and preparing proposal pricing sheets.





## Robert E. Pedigo

### Project Startup Manager

#### Technical Qualifications

- Registered Professional Engineer, Pennsylvania (Electrical) and Illinois (inactive)
- Six Sigma Black Belt

#### Education

- B.S., Electrical Engineering, Pennsylvania State University

Bob Pedigo is a seasoned Startup Manager with 39 years of increasing responsibilities both on projects and in functional management. He is a Bechtel Startup Subject Matter Expert, and his expertise includes plant startup and startup planning of systems and facilities, plant maintenance and reliability (nuclear, petrochemical, and industrial), procedure development, and multi-discipline organization coordination. In addition, he is a Six Sigma Black Belt who has successfully developed and implemented several startup process improvements.



#### Deputy Manager of Startup, Bechtel Oil, Gas & Chemicals (OG&C)

**2014–Present:** Mr. Pedigo is responsible for startup functional oversight of the OG&C global business unit projects in development and execution around the world.

#### Chief Startup Engineer, Bechtel OG&C

**2013–2014:** Mr. Pedigo was responsible for overseeing startup at multiple Liquefied Natural Gas (LNG) projects from the Houston OG&C headquarters.

#### Chief Startup Engineer, Bechtel Corporation

**2011–2013:** Mr. Pedigo was responsible for the continued development and revision of Bechtel's corporate Startup Procedures (content and configuration management) and the management of the corporate Startup Engineer Certification program and oversight of corporate startup records and archives. In addition, he served as a Startup Subject Matter Experts for several nuclear power and LNG projects.

#### Project Startup Manager, mPower Small Modular Reactor (SMR) and Calvert Cliffs Unit 3

**2008–2011:** On the mPower SMR project, Mr. Pedigo oversaw design input, program development, and early project planning during the development of the SMR design and execution planning. On Calvert Cliffs 3, he performed design input, program development, and early project planning for the US-EPR nuclear power reactor design that was proposed for the Calvert Cliffs site.

#### Assistant Manager of Startup, Bechtel OG&C

**2004–2008:** Mr. Pedigo assisted in startup functional oversight of OG&C projects in development and execution.

#### Six Sigma Black Belt, Bechtel Corporation

**2003–2004:** As one of the Six Sigma Black Belts, Mr. Pedigo successfully developed, completed, and implemented two Process Improvement Projects (PIPs), that improved Bechtel's process and procedures for Steam Line Cleaning and Chemical Cleaning. He also conducted Six Sigma awareness training and program audits throughout the company.

#### Project Support Supervisor, Bechtel Corporation

**2000–2003:** Mr. Pedigo's responsibilities included project development support (proposal estimating, schedule development, and execution philosophy input), project execution support, and startup execution philosophy research and development for projects mainly in the Power and Government Services sectors.

#### Lead Startup Engineer, River Protection Project

**1999–2000:** Mr. Pedigo's responsibilities included development of the startup portion of project estimate and schedule, development of commissioning strategy and startup program, development of test section of the

Preliminary Safety Analysis Report, and provision of input to design for startup, maintenance, and operations on this Department of Energy nuclear waste vitrification project in eastern Washington.

#### **Site Manager, BP Amoco and Koch Refinery Projects**

1997–1999: Mr. Pedigo had overall responsibilities for capital projects, maintenance support, and turnarounds at BP Amoco's Pasadena, TX plant. For the Koch Refinery, he had responsibility for 300 direct hire craft and 35 non-manual staff, with scopes of work including maintenance, turnarounds, and capital projects under \$10 million.

#### **Project Startup Engineer, Koch Refinery and Hoechst Celanese Projects**

1994–1997: Mr. Pedigo's responsibilities included Koch/Bechtel Alliance development, Koch Corporate maintenance program reengineering, KRC-CC maintenance program development (east and west plants), plant reliability program development, maintenance technology development, and maintenance resource redeployment. On the Hoechst project, his duties included client maintenance organization restructuring, plant reliability program improvement, process and equipment improvements, and plant preventive / predictive maintenance program development.

#### **Project Engineer, Dresden and Quad Cities Nuclear Power Plant Maintenance & Modification**

1991–1994: Mr. Pedigo's responsibilities included oversight of the resident engineering group, client interfaces, building a resident team, and facilitating execution of work, as well as project planning, maintenance group restructuring, and site procurement process evaluations.

#### **Project Startup Engineer, Susquehanna Steam Electric Station**

1987–1991: Mr. Pedigo served as site manager for all Bechtel activities at Susquehanna, including interfaces for operating plant services and coordinating support with multiple Bechtel offices. Additionally, he performed in a seconded role to PP&L as a mechanical maintenance planner. His responsibilities included generating work plans for work authorization documents using PP&L mainframe, knowledge of ASME Code (including NIS-2 forms, code repair forms and code retest and inspection requirements), familiarity with plant technical specifications, preparation of weld travelers, jobhour estimating, ALARA radiation blocking, personnel safety blocking, materials and parts, operating plant impacts, special tooling and techniques.

#### **Senior Startup Engineer, Susquehanna Steam Electric Station**

1982–1987: Mr. Pedigo was ACR/PGCC group supervisor, responsible for special projects, design change package implementation, Regulatory Guide 1.97 changes, and human factors engineering. Additionally, as supervisor of the procedure-writing group, he was responsible for technical specification compliance review documents and local panel alarm response procedures. Later on in the project, he was responsible for project coordination and startup of an additional standby emergency diesel generator, as well as schedule development, project scoping, design compliance, and operability review.

#### **Startup Engineer, Susquehanna Steam Electric Station**

1980–1982: Mr. Pedigo was responsible for the startup worklist (open items tracking), as well as the startup of the standby diesel generator and 24 and 125 V DC systems. He assisted in the Unit 1 integrated leakage rate test and preliminary work for vessel nuclear instrumentation.

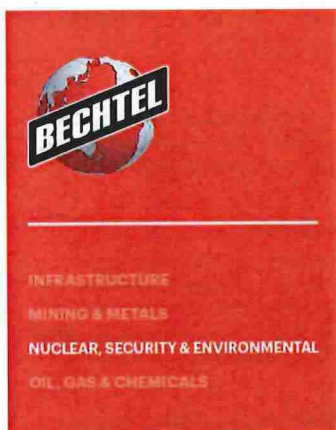
#### **Field Engineer, Comanche Peak Nuclear Generating Station**

1979–1980: Mr. Pedigo was responsible for generating turnover packages, system scoping, and system walkdowns; generating and verifying construction punchlist completion; conducting weekly construction turnover progress meetings; and presenting system turnover to client.

#### **Field Engineer, Susquehanna Steam Electric Station**

1976–1978: Mr. Pedigo was responsible for the electrical and instrumentation portion of the primary containment structural integrity test; civil support in the reactor building and control structure; and raceway and equipment installation for the control structure, containment, and reactor buildings, including the advanced control room/power generation control complex (ACR/PGCC).





# Jerry B. Pettis

## Project Administrator

### Education

- B.S., Business Administration, Lander University

### Military Service

- U.S. Army, 1968-1971
- South Carolina Army National Guard, 1972-1979

Jerry Pettis is a seasoned, results-oriented professional with 26 years of experience within contractor organizations supporting Department of Energy nuclear facilities and the National Nuclear Security Administration. He has proven leadership capabilities in interpreting and executing requirements, reducing costs, maximizing team productivity, and developing innovative tools. He has successfully managed teams responsible for a variety of administrative functions to include prime contract requirements, records administration, document control, publications, training, and related budgetary processes. He has returned to Bechtel employ after several years of retirement.



### Document Services Manager, Depleted Uranium Hexafluoride (DUF6) Project, B&W Conversion Services

2011–2013: Mr. Pettis managed the document and records functions for the DUF6 conversion plants in Paducah, Kentucky and Piketon, Ohio, as well as the executive office functions located in Lexington, Kentucky. His responsibilities included managing all project records, document control, and procedures functions. He ensured that Department of Energy (DOE) documents and records were created, maintained, captured, and protected per published requirements.

### Manager, TA-21 Project Services and Infrastructure, Los Alamos National Laboratory, Bechtel National

2009–2011: Mr. Pettis managed administrative and facility services for a \$212 million American Recovery and Reinvestment Act of 2009 (ARRA) environmental restoration and decontamination and decommissioning project. His responsibilities included ensuring that the stringent reporting requirements required by ARRA were met; managing all project records, document control, and procedures functions; project training development, implementation and tracking; development and implementation of a robust internal and external communications and outreach program; facility utilization and staff assignment activities; project issues tracking and resolution, and project security.

### Requirements Manager, Prime Contract Management Office, Lawrence Livermore National Laboratory, Bechtel National

2007–2009: Mr. Pettis managed complex activities for the laboratory's prime contract, which include ensuring that organizational objectives involving the performance evaluation process, program direction, cost allowability, and other aspects of prime contract management are met. He also was the institutional interface between the company and external agencies for the evaluation and interpretation of regulations and directives for applicability to the prime contract, coordinating with National Nuclear Security Agency's Livermore Site Office in making changes to the list of DOE orders, policies, notices, and standards included in Appendix G of the prime contract. Additionally, he ensured that responsible managers assess the cost and schedule impacts of any proposed addition of requirements to the contract and coordinating assessment outcomes with the Livermore Site Office.

### Document Control Group Leader, Information Resources Management Division, Los Alamos National Laboratory, Bechtel National

2006–2007: Mr. Pettis managed complex activities for institutional level document control activities by establishing an institutional, customer focused, centralized document control program for the laboratory; integrating numerous disparate document control processes and systems into an integrated program. He established minimum training and performance expectations for laboratory document control staff to ensure consistent document control capability and that the appropriate laboratory documents were retained and up-to-date versions were available to all users in a timely fashion. He also supported the Information Resources Management Division Leader in developing and monitoring the division budget.

#### **Manager, Information Resources Department, Nevada Test Site, Bechtel National**

**2004–2006:** Mr. Pettis managed complex institutional level activities for a variety of administrative and technical support services for Bechtel's work on the Nevada Test Site. His responsibilities included functional management of all Bechtel administrative employees and technical writers; operation of the Nuclear Testing Archive; program management for all institutional records and document control; institutional scientific and technical information programs; office services functions such as printing and reproduction services, mail services, printing services through the Government Printing Office (GPO), and convenience copier program management.

#### **Manager, Program Administration and Support Department, Soil & Groundwater Closure Projects, Savannah River Site, Bechtel National**

**2002–2004:** Mr. Pettis managed extensive department level activities in support of environmental restoration activities at the 310 square mile Savannah River Site. His responsibilities included development and implementation operations and regulatory training for environmental restoration employees; development, revision, publication and maintenance of procedures; production of a large number of regulatory documents; development of graphics and presentations to support internal and external communication of the environmental restoration mission, challenges, and successes; document control and records management to include management of the sites Administrative Record and public reading room materials; maintenance of the reproduction center and capability; coordination and management of division clerical and secretarial support personnel; and accountability and inventory of all division property and facilities.

#### **Division Training, Procedures, and Reporting Manager, Soil & Groundwater Closure Projects, Savannah River Site, Bechtel National**

**1995–2002:** Mr. Pettis managed division level activities that included the analysis, design, implementation, evaluation, and maintenance of initial and continuing training for job-specific operator, staff, supervisor and manager training programs. These programs included general, task specific, and regulatory training for 400+ employees and subcontractors; the development, scheduling, publication, and technical support for presentations and reporting to audiences including Department of Energy, Environmental Protection Agency, South Carolina Department of Health & Environmental Control, and the site's Citizen's Advisory Board. He also oversaw the management and maintenance of the division's emergency action and emergency response programs.

#### **Administrative Manager, 400-D Power House, Savannah River Site**

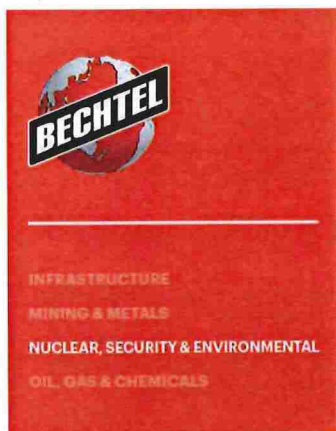
**1993–1995:** Mr. Pettis managed all phases of administrative support for the site's 70 MW coal fired power and steam plant, including the interpretation and administration of Power Operations Department plans and policies; document control and records management; procedures development, and publication and maintenance. He was also responsible for the analysis, design, implementation, evaluation, and maintenance of initial and continuing training for job-specific operator, staff, supervisor and manager training programs for 300+ employees, as well as facility issues investigation as Critique Director. He also functioned as interface with the DOE facility representative for resolving identified facility and programmatic issues and served as area emergency coordinator.

**1987–1993:** Prior to his position as Administrative Manager, Mr. Pettis held several positions of increasing complexity and responsibility at Savannah River, including the development of a cross functional team to identify, categorize, inspect and maintain the site's earthen dams. He was awarded the prestigious George Westinghouse Signature Award of Excellence for successfully supervising the \$10 million, 19 month, PAR Pond earthen dam emergency stabilization project.

#### **Various positions in manufacturing, civil service, finance, management consulting, and banking**

**1967–1987**





# Michael K. Robinson

## Construction Manager

### Technical Qualifications

- Registered Professional Engineer in Pennsylvania

### Education

- B.S., Civil Engineering, University of California
- Certificate, Bechtel Executive Plan XVIII

Mike Robinson has more than 44 years of project and corporate management, construction, and engineering experience on various fossil and nuclear power generation projects worldwide, as well as U.S. Government environmental remediation and infrastructure rebuilding efforts. He has provided leadership on some of the largest mega-projects in the power and government sectors. His career has spanned all aspects of project and construction management of solid fuel, natural gas, and nuclear facilities, as well as commercial and engineering roles of increasing responsibility. He is a proven and highly respected leader who is equally adept in managerial, technical, and commercial roles. He has recently returned to Bechtel after several years in retirement.



### Project Manager/Site Manager, Crystal River Unit 3 Containment Repair Project

2012–2013: Mr. Robinson led the multi-disciplinary team to develop engineering/construction solutions and cost and schedule estimates for the Crystal River 3 containment delamination repairs, one of the most technically daunting efforts in the industry, from its initial development through the phase I engineering effort until the project was cancelled by the customer and the plant permanently shut.

### Project Manager, M-3 Mixing Project

2010–2011: Mr. Robinson was responsible for managing the closure of the mixing issues for the waste receiving, transfer, and mixing tanks and issues associated with them for this Department of Energy (DOE) site. Project requirements were to design the systems and provide testing that demonstrates the design works. DOE HQ and local office personnel required that any issues surrounding the Mixing Project were identified to ensure that the plant will operate for its 40-year life.

### Area Project Manager/Project Operations Manager, Waste Treatment Plant (WTP)

2007–2010: Mr. Robinson was the Area Project Manager for the Plant-wide account that includes Engineering, Construction, Acquisition Services, Materials Management, and Startup for this \$15B+ project. He had the responsibility to ensure that each department is meeting their budgets and schedules, have proper staff to meet the project needs, and have proper plans to go forward. Each department had to identify any cost or schedule changes and have adequate documentation and justification for those changes. Mr. Robinson interfaced daily with his client counterpart to ensure they were aware of current issues and events. In addition, he was the Project Operations Manager, and these additional responsibilities included safeguards and security, risk management, project support, and special project management projects. Mike was also the Six Sigma deployment manager.

### Site Manager, Oak Creek Expansion Project (Elm Road)

2004–2007: In this capacity, Mr. Robinson was involved in developing the construction philosophy for this 1,300 MW two-unit EPC new build coal-fired power plant, including detailed up-front planning for execution of the project, staffing, schedule, erection scheme, and interface with engineering, vendors, subcontractors, and unions. The execution of the work included day-to-day direction of all construction personnel, interface with the owner and other agencies to resolve open issues, answer questions, and coordinate plans because of the existing power plant on the same site.

### Operations Manager, Iraq Project

2003–2004: Mr. Robinson was responsible for all work in the northern two thirds of Iraq, which included included power projects, water and waste projects, bridge repair, telephone infrastructure repair, and school and hospital repair. Daily interface with both USAID and the U.S. military as required to coordinate work and ensure the most pressing projects were worked and funds were available. Additional coordination with the

Iraqi Ministry personnel was also required to ensure they were kept informed about the status of projects, and they agreed with the proposed projects being planned.

#### **Fossil Operations Manager–North America, Bechtel Power**

**2000–2003:** Mr. Robinson was responsible for project execution of over half of the on-going North American power projects, including establishing the project management philosophy and procedures, continuously monitoring the project status including cost, schedule, safety, staffing, trends, change orders, and client relations. He provided real time feedback and guidance to the project managers about their performance, in addition to providing training and personal development. Mike assisted Business Development with project development and reviewed the commercial issues to ensure that they met business requirements.

#### **Fossil Operations Manager–Europe, Africa, Middle East, Bechtel Power**

**1999–2000:** In this capacity, Mr. Robinson was responsible for project execution of all power projects in the EAM region, including establishing project management philosophy and procedures. He continuously monitored project progress including cost, schedule, safety, client relations, staffing, and trends. Mike assisted with Business Development efforts and concurred with final estimates. He interfaced with other Regional Ops Managers to optimize resource usage and project execution.

#### **Project Director, Dabhol Power Station Project**

**1994–1999:** Bechtel and General Electric (GE) formed a consortium to perform the engineering, procurement, construction, and startup of this 2,240 MW combined cycle power project in India (at the time the largest foreign investment in India), with GE providing the major equipment and Bechtel providing the balance of the work. Mike had overall responsibility for the consortium, as well as being the prime interface with the Owners' Project Director. Primary activities included developing project execution philosophy, Bechtel/GE interface, and day-to-day direction to the project managers and site manager.

#### **Manager of Projects, Fossil, Bechtel Power**

**1992–1994:** Mr. Robinson was responsible for the overall management of numerous fossil projects in various stages of development and execution. He supervised project managers and assisted them in setting goals and establishing philosophy of approach to individual projects. Mike provided guidance to project managers in their day-to-day activities, including client relationship and providing formal and informal training and development of the project managers. He also coordinated interaction between projects in areas of business line goals, company direction, relevant project experience, resource sharing and allocation, and other pertinent information.

#### **Project Manager, Coryton Cogeneration Power Project**

**1991–1992:** Mr. Robinson was responsible for developing a lump sum package for the engineering, procurement, construction, and startup of a 500 MW combined cycle cogeneration plant for the Mobil Refinery in Coryton, England. Work included preliminary engineering to identify the technical scope of the project, selection and negotiation for lump sum contracts for the gas turbines, steam turbine, HRSG, and air-cooled condenser. Also included were development of a construction and labor relations' plan, project schedule, startup program, and full lump sum estimate. Assistance was provided to the client for permitting and non-recourse financing. Contractual negotiations for all terms and conditions were also included.

#### **Project Manager, Panther Creek Project**

**1989–1991:** Mr. Robinson assisted in project development including contract negotiations, cost, schedule, and testing requirements. He was responsible for project execution and management of engineering, construction, startup, procurement, and project controls. Mike coordinated and communicated with client/owner including change order negotiation and approval. He established terms and philosophy of job execution and kept appropriate management updated on project status. Mike also tracked job to final and successful completion.

#### **Project Manager, Scrubgrass Project**

**1989–1989:** Mr. Robinson assisted in project development including contract negotiations, cost, schedule, and testing requirements. He was responsible for project execution and management of engineering, construction, startup, procurement, and project controls. Mike coordinated and communicated with client/owner including charge order negotiation and approval. He established terms and philosophy of job execution and kept appropriate management updated on project status.

#### **Project Superintendent, Gilberton Cogeneration Project**

**1986–1989:** Mr. Robinson was the Project Superintendent for the construction of a \$100 million cogeneration facility. Contract included power plant and coal handling facility — 40 percent was subcontracted. Mike supervised 30 nonmanual and 200 craftsmen.

#### **Lead Contracts Coordinator, Scott Paper Cogeneration Project**

**1984–1986:** Mr. Robinson's duties included front end planning and contract package scoping. He also supervised the contract coordination on a fluidized bed boiler.

#### **Civil, Mechanical, and Electrical Craft Superintendent, Grand Gulf Nuclear Power Plant**

**1983–1984:** Mr. Robinson's duties included front end planning and contract package scoping. He also supervised the contract coordination on a fluidized bed boiler.



Michael K. Robinson

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**Lead Civil Contracts Coordinator, Martin Marietta Coal Conversion**

1981–1983: Mr. Robinson coordinated civil contracts, including contracts and specification interpretation, inspected and accepted the work, and negotiated extras and claims.

**Various Civil Engineering and Quality Positions, Grand Gulf Nuclear Power Plant**

1975–1981: Assignments at Grand Gulf included Assistant Lead Civil Engineer, Lead Area Engineer for the yard and control building, and Resident Civil Engineer. Mike acted on behalf of the Project Engineer at the jobsite. Duties as Lead Civil Quality Control Engineer and Assistant Project Field Quality Control Engineer included assisting in implementation of the project quality control policy and coordinating the work of all QC disciplines. Later assignments included responsibility for senior contractors' changes, invoice approval, and monthly progress meetings. As HVAC Coordinator, Mike coordinated the completion of all heating and ventilating systems with the contractor and Bechtel. He supervised up to 100 people.

**Construction Coordinator, SNUPPS**

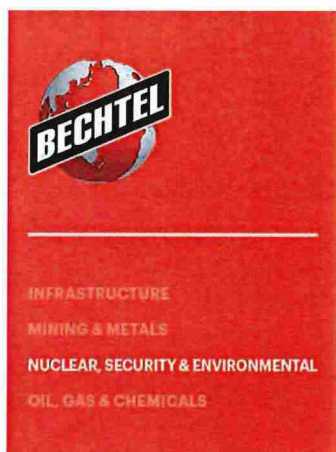
1972–1975: Mike reviewed drawings, specifications, project schedules, and procurement packages for final design phase and construction for the SNUPPS nuclear plant.

**Civil Design Engineer, FFTF**

1971–1972: Mike performed structural design and analysis for structural steel and concrete structures.

**Civil Field Engineer, Calvert Cliffs Nuclear Power Plant**

1969–1971: Mike was responsible for planning and scheduling, inspecting field placement, review drawings, quantity accounting, and scheduling civil activities.



## Stephen D. Routh

### Project Manager (Engineering and Licensing)

#### Technical Qualifications

- Registered Professional Engineer, Virginia
- Six Sigma Champion

#### Education

- M.B.A., Finance, Mount St. Mary's College
- MEng., Nuclear Engineering, Pennsylvania State University
- B.S., Nuclear Engineering, Pennsylvania State University

#### Memberships

- Member, American Nuclear Society
- Member, ANS SMR Task Force
- Member, EPRI Advanced Nuclear Technology Group
- Member, NEI COL Task Force
- Member, NEI Seismic Issues Task Force

Steve Routh is a Senior Project Manager with over 35 years of nuclear experience and is currently the manager of Bechtel's Nuclear Engineering Services group. He has supported new nuclear generation efforts at various sites since 2001 and is recognized as an industry expert in nuclear engineering, safety, and licensing. Additionally, Steve is an active member of NEI and EPRI new generation task forces and working groups.

#### Manager, Nuclear Engineering Services

**2009–Present:** Mr. Routh is responsible for Bechtel's engineering and licensing services projects including support of operating plants, new nuclear generation, Fukushima response projects, and proposal preparation. He was previously the Project Manager for New Nuclear Generation Projects. Projects supported during this period include:

- North Anna Unit 3 Owner's Engineer and COL (APWR/ESBWR)
- Turkey Point COL (AP1000)
- Calvert Cliffs COL (U.S. EPR)
- South Texas COL (ABWR)
- V.C. Summer Units 2 & 3 Engineering and Licensing Support (AP1000)
- FENOC New Nuclear Site Selection Study (mPower)
- AREVA DCD (U.S. EPR)
- Clinch River Construction Permit Application (mPower)
- Dominion, South Texas, Watts Bar, and Constellation Fukushima response projects
- SONGS Spent Fuel Pool Island Cooling
- Vermont Yankee Decommissioning Cost Estimate
- Monticello and Prairie Island design modifications
- Fennovoima (Finland) New Plant Constructability and Schedule Assessment (EPR and ABWR)
- Wylfa Newydd (UK) New Plant Schedule and Cost Study (ABWR)

Additionally, Mr. Routh managed Bechtel's overall Fukushima response efforts including industry representation and development of approaches and capabilities, as well as responsibility for nuclear power proposal preparation.

#### Project Manager, Early Site Permit/Combined Operating License Technology Group

**2001–2008:** As Manager of the ESP/COL Technology Group, Mr. Routh provided engineering and licensing oversight of Bechtel's new generation projects (Calvert Cliffs, North Anna, South Texas, Vogtle, V.C. Summer, Turkey Point, and Victoria County). He was also the project manager for the North Anna ESP project, North Anna COL and Site Engineering project, and the Turkey Point COL project.

#### Manager of Regulatory Affairs, Nuclear Power

**1999–2001:** Mr. Routh was responsible for the licensing and regulatory oversight of the Bechtel nuclear power projects (new nuclear generation, steam generator replacements [SGRs], operating plant services) and SERCH, Bechtel's generic licensing service.





**Licensing and Safety Analysis Supervisor, U. S. Enrichment Corporation**

1995–1999: Mr. Routh managed the preparation of the upgraded Safety Analysis Reports for the Paducah and Portsmouth gaseous diffusion plants and managed activities for the project team including subcontractor support. He also provided detailed cost and schedule control, technical review of revised analyses; responded to NRC questions, and interfaced with NRC and DOE personnel. Mr. Routh also established regulatory processes for NRC oversight.

**Project Engineer for the North Anna 1, North Anna 2, and Ginna Steam Generator Replacement Projects**

1991–1995: Mr. Routh's duties included managing mechanical, materials, civil, nuclear, and licensing engineering activities in support of the projects including evaluation of alternative approaches, conceptual and detailed engineering, constructability reviews, subcontractor control, and client interface.

**Assistant Chief Nuclear Engineer**

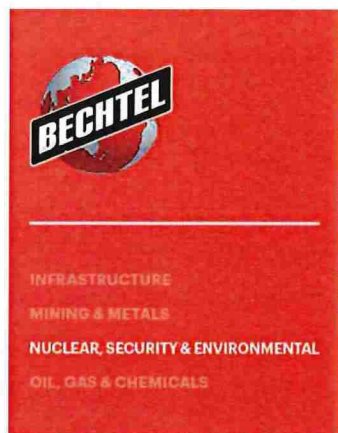
1987–1991: Mr. Routh provided nuclear licensing support to operating plant services projects in the areas of design change packages operability and safety evaluations, justified continued operations, Part 21s, and NRC interaction, and assisted in the administration of the nuclear department and salary planning.

**Nuclear/Licensing Supervisor**

1983–1987: Mr. Routh prepared the safety analysis report, environmental report, and license documents for the Surry plant dry cask Independent spent fuel storage installation (the first licensed in the United States), and supported several other operating plant services and SGR projects.

**Licensing Engineer/Deputy Supervisor, Grand Gulf Project**

1980–1982: Mr. Routh supported the licensing effort for the operating license, preparation of the FSAR, environmental report, and the technical specifications. He supported NRC question responses, public hearings, as well as NRC safety evaluation report review and SER open item responses.



## Edward (Ed) A. Sherow

### Engineering Manager

#### Technical Qualifications

- Six Sigma Champion

#### Education

- B.S., Electrical Engineering, Rensselaer Polytechnic Institute

Ed Sherow has over 43 years of engineering experience in the nuclear and fossil power industry, focusing on all phases of power plant activities, with specific background in electrical. He has worked on numerous projects throughout his career including Calvert Cliffs, Grand Gulf, Turkey Point, and Brown's Ferry Units 1 and 3 nuclear plants, as well as the design development of the U.S. EPR and the associated submittal of a COL for Calvert Cliffs Unit 3.



#### Engineering Manager, Nuclear Projects

**2012–Present:** Mr. Sherow is currently responsible for functional engineering management oversight, development, and execution of multiple nuclear projects. Work involves assistance and review of project estimates/schedules, project setup and staffing review, quality, schedule, and budget performance monitoring, project-specific process and procedural approvals, and coordination of lessons learned/experiences between multiple nuclear projects.

#### Nuclear Project Engineering Manager/Project Engineer, U.S. EPR Design Development & Certification and Calvert Cliffs Unit 3 COLA

**2005–2011:** Mr. Sherow managed the detailed design for the U.S. EPR, a 1,600 MW Generation III+ nuclear plant, with the first plant in the U.S. targeted for Calvert Cliffs. He also managed the work associated with supporting AREVA in achieving design certification. He also managed the development and support to UniStar (JV of EdF and Constellation) for submittal of the Combined Operating License Application for Calvert Cliffs Unit 3 based upon the EPR technology.

#### Fossil Project Engineer, Fossil Technology Group

**2005–2005:** Mr. Sherow managed the development and design of fossil generation plants. Work involved supervision or coordination of multidisciplinary engineers, technical specialists, estimators, and Business Development to provide proposals and the development aspects of fossil power projects. Close client coordination was required.

#### Task Integration Manager/Metrics Manager, Browns Ferry Unit 1 Restart Project

**2003–2005:** Mr. Sherow was responsible for the overall execution and quality of work relating to metrics reporting, integrated task equipment list programming/data integrity, and overall training program.

#### Assistant Project Manager/Project Engineer, Mountainview CCGT Project

**2001–2003:** As assistant project manager on this combined cycle gas project, Mr. Sherow's responsibilities included supervising execution planning, contract administration of the EPC Agreement, contract administration of major equipment (including the GE Power Island subcontract), contract compliance as well as the championing of other specific areas of critical concern to the success of the project. He was also responsible for interface with the Owner's project manager and for monitoring cost and schedule progress. As project engineer, he was also responsible for the overall engineering of the project, including technical correctness, compliance with codes, optimizing design/installation costs, and interface with suppliers and owner.

#### Fossil Project Engineer, Fossil Technology Group

**1999–2001:** Mr. Sherow managed the development and design of fossil generation plants. Work involved supervision or coordination of multidisciplinary engineers, technical specialists, estimators, and Business Development to provide proposals and the development aspects of fossil power projects. Close client coordination was required. During this period, Mr. Sherow also completed a 7-month assignment in 2000 at the Red Hills Generation Facility jobsite, a 440 MW CFB in Mississippi, as the Project Field Engineer responsible for all Field Engineering activities at the site.



**Multi Project Acquisition Group (MPAG) Manager, MPAG**

1996–1999: Mr. Sherow managed the electrical MPAG. The group is an integrated cross-functional team of engineering and procurement personnel implementing the Bechtel supply chain strategy. Efforts focused on optimizing and managing cost and schedule in the delivery of equipment. Key items included interfacing power projects and suppliers, implementing standard products, making process improvements and negotiating supplier agreements. During this period, he managed the combined Electrical/Control Systems MPAG until it was separated into two groups.

**Project Manager, Substation/Transmission Engineering**

1993–1996: In this assignment, Mr. Sherow was responsible for commercial and technical operations of the Gaithersburg Substation/Transmission Engineering (STE) Group. The STE Group varied in size from 20 to 30 multidiscipline engineers doing switchyard and transmission line work directly for utilities while also supporting Bechtel New Generation projects.

**Project Engineer, Browns Ferry Nuclear Unit 3**

1991–1993: Mr. Sherow's responsibilities included overseeing the electrical discipline consisting of 135 to 200 engineers preparing design modifications for upgrading Unit 3 to allow restart. Effort included monitoring schedules for all activities, monitoring costs, interfacing with client, supervising personnel, and preparing, evaluating, and approving proposals. He was also responsible for special projects and later the DCN Production Group. Special projects duties included overall responsibility for Procurement Engineering Group and engineering scheduling for restart of Browns Ferry Unit 3. For the DCN Production Group, he was responsible for multidiscipline group of 250 engineers preparing design modifications for upgrade of Unit 3 to allow restart. Effort included monitoring schedules for all activities, monitoring costs, interfacing with the client, and preparing, evaluating, and approving DCN modification packages.

**Project Engineer/Group Supervisor, FPL Projects**

1986–1991: Mr. Sherow was responsible for managing FPL's drawing update efforts for Turkey Point Units 3 and 4. Work included approving drawings as client representative, monitoring and controlling work output, reviewing indicators, assigning work priorities for up to 60 people, and maintaining budgets/schedules. He was also responsible for managing the design fossil operating plant services and the electrical and I&C work.

**Group Supervisor, Electrical/Control Systems Group, Operating Services**

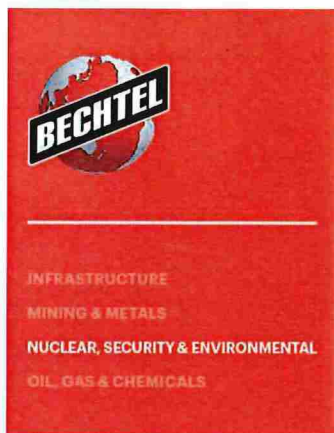
1984–1986: Mr. Sherow's tasks included supervising electrical and instrumentation and controls (I&C) work at various operating plants. He approved drawings, calculations and installation packages, preparing/evaluating proposals, coordinating with vendors/client, monitoring schedules/budgets, and electrical/control systems work of up to 20 engineers. Typical projects included addition of a precipitator for BG&E H.A. Wagner Unit 3, addition of dry cask spent fuel storage, radiation monitoring upgrade, and a facilities renovation for Virginia Power's North Anna and Surry Nuclear Stations, addition of natural gas warm-up for BG&E H.A. Wagner Unit 2, upgrading coal handling and sampling for Virginia Power's Mt. Storm Plant, a conversion to natural gas for FPL's Martin plants, and using coal water slurry as an alternate fuel for the Pfizer plant at Groton.

**Group Supervisor, Electrical/Control Systems Group, Grand Gulf Units 1 and 2**

1976–1984: In this assignment, Mr. Sherow's responsibilities included approving drawings, calculations, and installation packages, preparing/evaluating proposals, coordinating with vendors/client, monitoring schedules/budgets, and supervising electrical and I&C work.

**Electrical Field Engineer, Calvert Cliffs Units 1 & 2 and Grand Gulf Unit 1**

1972–1980: Mr. Sherow was responsible for overall installation and turnover to Startup of various plant systems. Duties included verifying system scope, walking down the system to ensure construction-reflected design, interfacing with Design Engineering, preparing punch lists for outstanding items, and releasing systems to Startup. He was also responsible for cable installation. Duties included verifying routing (both by drawing review and walkdowns), correcting routings, cable inspections, initiating termination installation, cable termination inspection, documentation reviews, and resolving problems.



# George D. Spindle

## Construction Manager

### Technical Qualifications

- Registered Civil Engineer, California and Pennsylvania (Retired)
- Member, National Society of Professional Engineers
- Member, California Society of Professional Engineers

### Education

- B.S., Civil Engineering & Mathematics, University of Arizona
- Construction Executive Program, Texas A&M University

Over his 47 year Bechtel career, Mr. Spindle has served in a variety of construction management and leadership roles, both domestically and around the world. He offers broad and deep construction and managerial experience from nuclear and fossil power plants to oil and gas facilities with a variety of execution and contractual models. He has a proven ability to both manage and lead others in order to successfully execute projects on time and budget. Currently, Bechtel is privileged to have Mr. Spindle as a consultant resource, and he serves as a construction subject matter expert on a variety of Bechtel projects world-wide.



### Consultant, Bechtel Group

**2009-current:** Since his retirement from Bechtel, Mr. Spindle has consulted on various Bechtel projects, providing insight on nuclear and fossil power, mining and metals, infrastructure, and oil and gas projects. His input has included analysis of execution strategies, risks, and implementation of lessons learned, as well as commercial and technical aspects of projects. He has also led two assessments of the status, challenges, and opportunities on the Watts Bar Unit 2 Completion Project.

### Site Manager, Olympic Dam Project

**2009:** Mr. Spindle was the Site Manager of the Olympic Dam Project in Australia, a \$12B uranium mine for BHP-Billiton awarded to Bechtel on an EPC basis. He led the development and execution planning for the project until it was cancelled due to the economic downturn.

### Manager of Construction, Bechtel Oil, Gas & Chemicals (OG&C)

**2005-2008:** Mr. Spindle oversaw the construction execution and personnel deployment for all OG&C projects world-wide.

### Manager of Construction, Bechtel Construction Operations Incorporated (BCOI)

**2000-2005:** Mr. Spindle was responsible for the world-wide execution of construction projects, deployment of construction personnel, and the effective implementation of processes and procedures.

### Manager of Construction, Bechtel Construction Co. / Bechtel Builders Inc.

**1994-2000:** Mr. Spindle was responsible for the execution of all construction projects in the Asia Pacific region, deployment of construction personnel, and the effective implementation of processes and procedures.

### Manager of Construction, Bechtel Construction Co.

**1992-1993:** Mr. Spindle was responsible for the execution of all construction projects in Western North America and the Asia Pacific region, deployment of construction personnel, and the effective implementation of processes and procedures.

### Manager of Construction, San Francisco Regional Office

**1990-1992:** Mr. Spindle was responsible for the execution of all construction projects sponsored by the SF office, deployment of construction personnel, and the effective implementation of processes and procedures.

### Construction Manager, Bechtel Construction, Inc.

**1989-1990:** Mr. Spindle was responsible for the construction execution of all direct hire power and petroleum projects.



**Field Construction Manager, Basic American Foods American I Cogeneration Project**

1988–1989: Mr. Spindle was responsible for the construction execution of this 120 MW California cogen project, which primarily uses natural gas to provide supply steam for vegetable drying and power to the electric grid.

**Field Construction Manager, Gilroy Food Cogeneration Project**

1986–1987: Mr. Spindle was responsible for the construction execution of this 115 MW California cogen project, which primarily uses natural gas to provide supply steam for food processing and power to the electric grid.

**Field Construction Manager / Project Superintendent, Colstrip Units 3 & 4 Power Project**

1979–1986: Mr. Spindle was responsible for the construction execution of two coal-fired units in Montana, producing 740 MW each. He began the project as Superintendent and in 1984 became the Field Construction Manager.

**Lead Civil Superintendent, Limerick Nuclear Generating Station**

1974–1979: Mr. Spindle was responsible for all civil work in the reactor buildings.

**Assistant Superintendent, Jim Bridger Generating Station**

1973–1974: Mr. Spindle was responsible for supervising all craft personnel involved in civil earthworks on these four coal-fired units in Wyoming, producing a total of 2,110 MW.

**Senior Field Engineer/Construction Coordinator, Limerick Nuclear Generating Station**

1971–1973: As Senior FE, Mr. Spindle was responsible for construction planning and scheduling, and as CC he was the construction liaison between the field work and engineering.

**Field Engineer, Monticello Nuclear Power Plant**

1968–1970: Mr. Spindle was responsible for the construction planning and scheduling.

**Various Construction Roles**

1961–1968: Mr. Spindle held various construction labor and planning/scheduling positions.

## Appendix C

### Bechtel Weekly Reports

Strictly Confidential to Bechtel, SCE&G, and SCPSA.



**Bechtel Weekly Report  
V.C. Summer Units 2 & 3 Completion Assessment  
Week Ending August 28, 2015**

- Members of the Bechtel team are scheduled to arrive onsite on Tuesday afternoon, September 8.
- On August 19, Bechtel provided a suggested agenda for the Wednesday, September 9, Consortium presentation at the site. A revised version of the agenda was received from WEC on August 25. Some additional suggested changes were provided by Bechtel on August 26.
- On August 24, a conference call was held with WEC to discuss Bechtel's document request list:
  - WEC described the status of identifying and obtaining approval to release copies of documents to Bechtel.
  - WEC described that a document room would be setup in the NOB where hard copies of certain documents would be placed.
  - Bechtel provided clarifications of several documents requested to WEC on August 26.
  - No new documents were received from SCANA or the Consortium during the week. The last documents received were posted in SCANA's electronic reading room on August 14.
- A CD of the Owner's P6 Integrated Project Schedule (IPS) was received on August 19. Since then, Bechtel has down loaded the schedule, identified the subprojects, and has begun manipulations of the schedule data. Based on initial reviews:
  - The IPS CD does not include all of the P6 schedule files (e.g., the WEC Engineering files are missing and the Milestones integration file was not provided). Without the Milestones file, schedule calculations cannot be performed.
  - It appears that there are as many as 60 mandatory constraints in the schedule data base that are precluding a true calculation of critical path negative float. The path that will have the largest impact appears to be through the shield building.
  - There appear to be minimal quantities loaded in the schedule. Quantities for the next 3 months are included, but it is not clear if they are complete. Quantities loaded in the schedule are needed to understand the impacts on installation sustained unit rates.
  - A preliminary manpower curve extracted from the schedule shows a peak of around 450,000 hours (2,200 craft) for a single month. This appears significantly low for a two unit construction effort.

An initial discussion of the above schedule items was conducted with CB&I Project Controls personnel on August 26.

- Members of Bechtel's team continued their review of documents provided by SCANA and the Consortium.
- Began review of subproject schedules related to Construction. Also began review of subproject schedules containing Engineering, Licensing, Procurement/Subcontracts, and Quality Assurance activities.
- Prepared preliminary list of Construction discussion topics and questions in preparation for site mobilization and initial interviews.

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- For Construction, Bechtel is interested in more information about the shield building. Bechtel's assessment will focus on panel fabrication, engineering tolerances, engineering changes, and installation sequencing. Installation of bulks is likely a near second critical path and will also be a focus area for the assessment.
- Information still needed from the Consortium for the Construction assessment includes:
  - Quantity curves
  - Unit rates
  - Manpower curves: non-manual and craft
  - Percent complete curves and method of calculation
  - Manpower loaded schedule
  - Equipment release dates
  - Module details, delivery schedules, and summary of all
  - Shield wall details and delivery and installation schedule



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- Members of the Bechtel team are scheduled to arrive onsite on Tuesday afternoon, September 8.
  - The Consortium presentation to the Bechtel team is scheduled for Wednesday, September 9. A final agenda was issued by WEC on September 7.
  - Status of Bechtel's document request:
    - No new documents were received from the Consortium, SCANA, or Santee Cooper during the week. The last documents received were posted in SCANA's electronic reading room on August 14.
    - Members of Bechtel's team continued their review of documents that have been received to date.
    - In September 4 and 7 emails, WEC provided the following status of documents:
- 219 Total Items Requested
- 138 items previously issued electronically or via IPS disc.
  - 20 items have been marked as duplicates to other items on the list.
  - 3 items have been approved as software access – no documentation required.
  - 1 item needs clarification from Bechtel regarding Bingo sheets (10.19).
  - 57 remaining items required approval to release.
- Remaining 57 Items
- 45 items have been approved and printed or made available for review. The reading room should be set up on Tuesday, September 8, for access by the Bechtel team.
  - 10 items have been approved and are part of the September 9 presentation and/or will be made available during follow-up deep dive sessions (difficult to produce copies of the information).
  - 1 item is approved but information is still being gathered regarding Construction Equipment plan (4.5).
  - 1 item will be discussed on September 9 - Engineering Manpower curves (10.13).
- A CD of the Owner's P6 Integrated Project Schedule (IPS) was received on August 19. Bechtel has down loaded the schedule, identified the subprojects, and is continuing to manipulate the schedule data. Bechtel's Project Controls, Construction, Engineering, Procurement, and Licensing personnel continued our review of the IPS information.

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1.	Work Activities Performed Last Week (September 8-11)
1.1	<p><b>General</b></p> <ul style="list-style-type: none"> <li>The Bechtel Assessment team arrived on Tuesday, September 8, 2015 to begin the six-week, onsite assessment effort.</li> <li>WEC and CB&amp;I Consortium members gave a full-day presentation to the Bechtel Assessment team on Wednesday, September 9, 2015. Copies of the presentation were placed in the Assessment Reading Room.</li> <li>The Bechtel Assessment team spent most of Thursday, September 10, and a large part of Friday, September 11, in training in order for the Bechtel team members to be granted a badge that will allow the Bechtel personnel unescorted access to the site. It is expected that the badges for unescorted access will be issued sometime during the week of September 14.</li> <li>On Friday morning, September 11, SCE&amp;G provided a site tour of Units 2 &amp; 3 and a majority of the lay down areas. All of the Bechtel team members on site took this tour.</li> <li>On Friday afternoon, members of the Bechtel Assessment team began to review the hard copy documents placed in the Reading Room.</li> </ul>

2.	Work Activities Planned This Week (September 14-18)
2.1	<p><b>General</b></p> <ul style="list-style-type: none"> <li>Complete badging for Bechtel Assessment team members.</li> <li>Scheduled breakout meetings with WEC and CB&amp;I personnel on Tuesday (September 15), Wednesday (September 16), and Thursday (September 17) from 1-4 pm to discuss: <ul style="list-style-type: none"> <li>Quantity Curves</li> <li>Craft Staffing Curves</li> <li>% Complete Curve</li> <li>Schedule – Critical Paths</li> <li>Quality Issues</li> <li>Modules</li> </ul> </li> </ul> <p>Follow-up meetings will be schedule as needed.</p>
2.2	<p><b>Project Management</b></p> <ul style="list-style-type: none"> <li>Carl Rau and Dick Miller have requested to have singular interviews with the following people on Wednesday, September 16: Steve Byrne, Jeff Archie (in Japan all week), Ron Jones, Alan Torres, Carlette Walker, and Carl Churchman.</li> <li>Continue review of documents in Reading Room.</li> </ul>
2.3	<p><b>Construction</b></p> <ul style="list-style-type: none"> <li>Perform direct observation of site activities: <ul style="list-style-type: none"> <li>Jobsite and area walk downs with senior construction personnel responsible for work areas.</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>- Review of on-site fabrication activities of modules.</li> <li>- Review of indirects with responsible superintendent.</li> <li>- Review of construction equipment with responsible superintendent.</li> <li>- Overview of the safety program including the successes and challenges.</li> <li>- Overview of the Quality Control program and activities.</li> <li>- Overview of the Work Package process and Document Control.</li> <li>- Review of constructability review program with responsible manager.</li> <li>- Attend the following meetings: <ul style="list-style-type: none"> <li>- POD – 9-10 am</li> <li>- Area Schedule Review – Thurs 1-3 pm</li> <li>- Module meeting with Customer – Tues 11-12 pm</li> <li>- OCC &amp; Site laydown plan – Wed 12-1 pm</li> <li>- Safety meeting</li> <li>- Individual Area Schedule Review meetings.</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>• Review documents in reading room.</li> <li>• Conduct internal discussions on comparisons of VCS against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.</li> <li>• Review welding activities, quantities, and manpower required.</li> </ul>
<b>2.4</b>	<b>Engineering and Licensing</b> <ul style="list-style-type: none"> <li>• Continue review of documents in Reading Room.</li> <li>• Participate in breakout meetings described in Item 2.1. Schedule follow-up meetings as needed.</li> <li>• Attend CB&amp;I/WEC Engineering Issues Meeting (0700).</li> <li>• Meetings are being scheduled with WEC, CB&amp;I, and SCE&amp;G lead engineering personnel.</li> <li>• Followup meeting scheduled with Brian McIntyre, WEC Licensing, at 8 am on Tuesday, September 15.</li> <li>• Meeting with April Rice, SCE&amp;G Licensing, is scheduled for Tuesday, September 15, at 4:30 pm.</li> </ul>
<b>2.5</b>	<b>Procurement</b> <ul style="list-style-type: none"> <li>• Continue review of documents in Reading Room.</li> <li>• Meetings are being scheduled with CB&amp;I Procurement at the corporate level, followed by the site team.</li> <li>• Meetings are being scheduled with Westinghouse's Procurement organization.</li> <li>• Attend the following meetings: <ul style="list-style-type: none"> <li>- POD – 9-10 am</li> <li>- Area Schedule Review – Thru 1-3 pm</li> <li>- Module meeting with Customer – Tues 11- 12 pm</li> <li>- OCC &amp; Site laydown plan – Wed 12-1 pm</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>• Participate in schedule reviews with Bechtel Team.</li> <li>• Module Plan – Determine focus of review and where potentially the Bechtel team needs to go.</li> </ul>
<b>2.6</b>	<b>Project Controls</b> <ul style="list-style-type: none"> <li>• Continue review of documents in Reading Room.</li> <li>• Participate in breakout meetings described in Item 2.1. Schedule follow-up meetings as needed.</li> <li>• Develop sustained rate comparison evaluation tables against Bechtel historical data.</li> <li>• Begin critical path evaluations.</li> <li>• Begin productivity evaluations against Bechtel historical projects.</li> </ul>

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## 1. Project Management

### Activities Performed Last Week (September 14-18)

- Four (of the nine) Bechtel personnel on the assessment team completed in-processing and received their Unit 1 badges. Four others were notified that their training was complete so they could be badged when they were available.
- Carl Rau and Dick Miller completed interviews with Ron Jones (VP-New Nuclear Operations and Owner's Project Director), Alan Torres (General Manager-Nuclear Plant Construction), and Carl Churchman (Consortium Project Director).
- September 17 – Bechtel (Steve Routh and Dick Miller) were invited and attended the Monthly Project Status Meeting.
- September 18 – Attended Consortium POD meeting.

### Activities Planned This Week (September 21-25)

- Work with Jason Brown of WEC to identify what remaining document requests will be filled this week. Documents provided after this week may be too late to be considered in the Bechtel assessment.
- Complete Unit 1 badging for remaining Bechtel team members.
- Obtain CB&I badges for Bechtel team members.
- Conduct interviews with Carlette Walker (SCE&G VP - Nuclear Financial Administration), Jeffrey Archie (SVP-SCANA and CNO-SCE&G), and Stephen Byrne (EVP-SCANA and COO-SCE&G & President-Generation).
- Attend various team and Consortium meetings.
- Tour site construction areas.

## 2. Construction

### Activities Performed Last Week (September 14-18)

- Reviewed Reading Room material including contract, quantity and manpower curves, September 9 Consortium presentation package, module drawings, etc.
- September 16 - Met with Bill Wood and JJ White and had a general discussion of project including nonmanual staffing, manual skill level and difficulties recruiting skilled crafts, and laid out plans for our walkdowns and interviews.
- September 14 – Toured laydown with SCE&G.
- September 15 – Attended SCE&G module meeting.
- September 15 – Attended Consortium Engineering overview presentation.
- September 15 – Participated in Consortium Project Controls presentation on quantity curves, manpower, earned percent complete, and critical path.
- September 16, 17, 18 – Attended POD meetings.
- September 16 – Met with Consortium Procurement and discussed procurement issues including laydown and warehouse issues, pipe holds and changes, organization.
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik.
- September 17 – Toured the Unit 2 Nuclear Island and discussed issues with Bob Johnson and Andrew Fleetwood.
- September 17 – Toured the Module Assembly Building operation with Bart Schaffer and staff.
- September 18 – Toured the Turbine Building area with Scotty Holland and discussed issues impacting work.
- September 18 – Met with Indirects Superintendent Terry Bolton and reviewed indirect program.

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Activities Planned This Week (September 21-25)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Attend September 21 Safety meeting.
- Discuss welding program with Mark Pietre.
- Attend September 21 meeting with Consortium on modules.
- Attend September 23 meeting with Consortium on QC program, including a detailed review of what the civil QC inspector does when inspecting a slab for concrete placement.
- Review Document Control Program, specifically how drawings are given to craftsmen and revisions tracked in the field.
- Review Work Package Program.
- Review Constructability Program.
- Conduct further review of Unit 2 Nuclear Island.
- Perform detailed review of Unit 2 containment schedule.
- Conduct internal discussions on comparisons of VCS against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.

### **3. Engineering and Licensing**

Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material including engineering and licensing procedures, licensing schedules, contract, September 9 Consortium presentation package, module drawings, etc.
- September 14 – Attended Consortium Licensing overview presentation.
- September 15 – Attended Consortium Engineering overview presentation.
- September 15 – Attended Consortium Project Controls presentation.
- September 15 – Met with April Rice of SCE&G to discuss general licensing issues and processes.
- September 16 – Attended Consortium Procurement presentation.
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik.
- September 16, 17 – Attended POD meetings.
- Participated in internal schedule discussions on comparisons of VCS against Bechtel historical information.

Activities Planned This Week (September 21-25)

- Review new material as it is posted to the Reading Room.
- Attend POD meetings.
- Meet with Brad Stokes and other SCE&G Engineering personnel.
- Attend September 21 meeting with Consortium on modules.
- Attend September 22 meeting with CB&I Engineering.
- Schedule visits to CB&I-Charlotte and WEC-Cranbury.
- Meet with Consortium Engineering personnel to discuss piping re-design effort and electrical support design.
- Obtain and evaluate metrics on E&DCRs and N&Ds.
- Review schedules for LARs and ITAAC closure.
- Provide Engineering and Licensing schedule input to Bechtel Project Controls.



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#### **4. Procurement**

##### Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material.
- September 15, 17 – Attended POD meetings.
- September 16 – Participated in Consortium Quality review of project with Dave Jantosik.
- September 16 – Met with Consortium site and corporate Procurement management personnel.
- September 17 – Participated in walkdown of Unit 2 containment and adjacent area.
- September 17 – Attended Area Schedule Review meeting.

##### Activities Planned This Week (September 21-25)

- Continue review of documents in Reading Room as they are submitted.
- Conduct additional meetings with CB&I Site Procurement to discuss data and process.
- Conduct walkdown of site warehouses and laydown yards.
- Schedule further discussion with WEC Procurement.
- Attend POD meetings.
- Attend September 21 meeting with Consortium on modules.
- Discuss need for site visits to module fabricator(s) and schedule.

#### **5. Project Controls**

##### Activities Performed Last Week (September 14-18)

- Reviewed electronic and Reading Room material.
- Compared current planned construction sustained rates to Bechtel historicals.
- Developed Bechtel version Level 2 schedule with additional detail within the key critical areas.
- Prepared a high level schedule milestone comparisons chart.
- Prepared initial productivity analysis for internal team reviews
- September 15 – Attended Consortium Engineering overview presentation.
- September 15 – Attended Consortium Project Controls presentation.
- September 16 – Attended Consortium Procurement presentation.

##### Activities Planned This Week (September 21-25)

- Continue review of documents in Reading Room as they are submitted.
- Schedule meetings with meetings with Abney Smith Jr. and Michele Stephens.
- Continue critical path evaluations.
- Start schedule probability assessment within P6 through use of PAR software.
- Review and finalize sustained rate comparison tables.
- Finalize Bechtel version L2 schedule for analysis reference.
- Create first revised schedule duration evaluation which considers current productivity impacts projected into the future.
- Create copy of the P6 Construction file with all hard constraints removed for future variation analysis.

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**Week Ending September 25, 2015**

## 1. Project Management

### Activities Performed Last Week (September 21-25)

- All Bechtel personnel are now badged.
- Carl Rau and Dick Miller conducted interviews with Steve Byrne (COO & SVP), Jeff Archie (CNO & SVP), and Carlette Walker (VP Nuclear Financial Administration).
- Attended various team and Consortium meetings.

### Activities Planned This Week (September 28-October 2)

- Work with Jason Brown of WEC to obtain the remaining documents requested.
- Interview Santee Cooper personnel.
- Meet with Bechtel assessment team members to review initial observations and recommendations.
- Attend various team and Consortium meetings.
- Tour site construction areas.
- Prepare sections of Bechtel assessment report.

## 2. Construction

### Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material.
- September 21 – Attended weekly superintendent safety meeting.
- September 21 – Met with Consortium personnel to discuss modules status and issues with deliveries and engineering.
- September 21 – Met with SCE&G Quality Manager to discuss client audits of CB&I quality.
- September 22 – Toured inside containment.
- September 22 – Attended the daily C20 Auxiliary Building and Containment 2 superintendent/field engineer schedule meeting.
- September 23 – Toured the shield building.
- September 23 – Met with CB&I Quality Control Manager to discuss organization and responsibilities.
- September 23 – Met with Consortium personnel to review the containment vessel schedule.
- September 24 – Met with CB&I Strategic Planning and Mechanical/Electrical Work Manager to discuss his group's efforts and review work package approach.
- September 24 – Met with Consortium Civil Work Package and Document Control personnel and reviewed the Annex Building civil work package and document control organization.
- September 24 – Met with Consortium project controls personnel to review the Unit 2 containment vessel schedule.
- September 25 – Attended the videoconference with WEC home office and site engineering personnel.

### Activities Planned This Week (September 28-October 2)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Hold meeting with CB&I Electrical superintendent to better understand electrical packages.
- Hold meeting with Consortium Advanced Constructability Personnel to better understand Containment 2 civil work.

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- Hold meeting with Consortium personnel to discuss electrical quantities and electrical support designs.
- Hold meeting with CB&I personnel to understand discipline superintendent roles.
- Attend September 28 follow-up meeting with WEC home office and site engineering personnel.
- Meet with Consortium Strategic Planning personnel to discuss work packages for piping and electrical on September 29.
- Meet with Consortium personnel to discuss startup plan, schedule, component test matrix, etc. on September 30.
- Perform detailed review of containment, auxiliary building, and turbine building schedules.
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Prepare sections of Bechtel assessment report.

### 3. Engineering and Licensing

#### Activities Performed Last Week (September 21-25)

- Reviewed new material as it is posted to the Reading Room.
- Attended POD meetings on September 22 and 24.
- September 21 – Attended meeting with Consortium on modules.
- September 22 – Attended meeting with CB&I Engineering.
- September 23 – Attended meeting on with Consortium on Strategic Planning.
- September 24 – Attended meeting on Work Package Development and Document Control.
- September 25 – Held videoconference with WEC Home Office (Cranberry, PA) and site engineering personnel to discuss to-go Engineering and engineering changes.
- Reviewed limited available metrics on E&DCRs and N&Ds.
- Provided Engineering and Licensing schedule input to Bechtel Project Controls.

#### Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted
- Attend September 29 and October 1 POD meetings (focus is engineering).
- Attend September 28 meeting with WEC Engineering to address to-go work (follow-up to September 25 videoconference).
- Attend September 30 meeting with Brad Stokes and other SCE&G Engineering personnel.
- Hold follow-up meeting with CB&I Engineering.
- Hold follow-up meeting with CB&I Licensing.
- Hold follow-up meeting with SCE&G Licensing.
- Meet with Consortium Engineering personnel to discuss piping re-design effort.
- Meet with Consortium personnel to discuss electrical quantities and electrical support design.
- Obtain and evaluate metrics on E&DCRs and N&Ds.
- Review schedules for LARs and ITAAC closure.
- Review representative ITAAC closure packages.
- Provide Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepare sections of Bechtel assessment report.

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#### **4. Procurement**

##### Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material.
- Conducted meetings with CB&I Site Procurement to discuss data, process, and reports.
- Conducted walkdown of site warehouses and laydown yards.
- September 21 – Attended meeting with Consortium on modules.
- September 25 – Attended videoconference with WEC home office and site engineering.

##### Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted.
- Conduct meeting with CB&I Charlotte and Site Procurement personnel (Consortium to schedule).
- Attend September 28 follow-up meeting with WEC home office and site engineering personnel.
- Prepare sections of Bechtel assessment report.

#### **5. Project Controls**

##### Activities Performed Last Week (September 21-25)

- Reviewed Reading Room material.
- Completed the projects baseline version Level 2 schedule with additional detail within the key critical areas.
- Created first version of Bechtel revised schedule forecast.
- Created baseline bulk installation curves based upon current Consortium forecast.
- Downloaded and reviewed the engineering/procurement P6 milestones file.
- September 22 – Attended Consortium Containment schedule overview.
- September 24 – Attended Consortium Auxiliary Building and Turbine Building schedule overview.

##### Activities Planned This Week (September 28-October 2)

- Continue review of documents in Reading Room as they are submitted.
- Create revised Bechtel forecasted critical path for evaluation.
- Create Basis and Assumptions file for Bechtel forecasts.
- Create multiple forecasts based upon productivity analysis.
- Finalize Bechtel version of Level 2 schedule for analysis reference.
- Create revised bulk and manpower curves based upon Bechtel forecasts.
- Create Unit 3 Level 2 schedule.
- Create combined Unit 2 and 3 craft manpower curves.
- Prepare sections of Bechtel assessment report.



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**Week Ending October 2, 2015**

## 1. Project Management

### Activities Performed Last Week (September 28-October 2)

- Continued with Interviews of Owner Personnel.
- Attended various schedule, work planning, and startup meetings with Consortium members.
- Continued data validation of transmitted project documents.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

### Activities Planned This Week (October 5-9)

- Interview Santee Cooper personnel.
- Meet with Bechtel assessment team members to review initial observations and recommendations.
- Attend various team and Consortium meetings.
- Tour site construction areas.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

## 2. Construction

### Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material.
- September 29 – Met with CB&I Strategic Planning Group to discuss work packaging.
- September 29 – Met with CB&I Electrical Field Superintendent to review extremely dense and complex electrical raceway and hangers in containment.
- September 29 – Met CB&I Advanced Constructability program to understand group responsibilities.
- September 30 – Observed Work Package distribution from the Document Control Center for Unit 2 Nuclear Island at start of shift.
- September 30 and October 1 – Met CB&I Startup personnel to review startup program and area and system turnovers from construction.
- October 1 – Met with CB&I Modules Procurement Manager to review program for module procurement.
- October 1 – Met with CB&I Shield Wall Manager to review erection of shield wall and roof.
- October 1 – Toured Unit 2 containment and auxiliary buildings and Unit 3 condenser assembly area.
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

### Activities Planned This Week (October 5-9)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Attend Safety Meeting.
- Meet with CB&I Labor Relations to discuss recruitment and training of crafts.
- Meet with CB&I Welding Engineering to discuss welding program.
- Meet with CB&I Field Engineering to discuss work packaging.
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on

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- unit rates, schedule durations, quantities, manpower, etc.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

### 3. Engineering and Licensing

#### Activities Performed Last Week (September 28-October 2)

- Reviewed new material as it is posted to the Reading Room.
- September 28 – Conducted follow-up conference call with WEC Cranberry Engineering.
- September 29 – Attended meeting with CB&I Strategic Planning Group to discuss work packaging.
- September 29 – Attended meeting with CB&I Electrical Field Superintendent.
- September 29 – Attended meeting CB&I Advanced Constructability program.
- September 30 and October 1 – Attended meeting with CB&I Startup personnel to review startup program.
- September 30 – Met with Brad Stokes, SCE&G General Manager, Engineering Services.
- October 1 – Met with Consortium Project Controls to review WEC Engineering schedule.
- Provided Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

#### Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted.
- Perform follow-up interviews with Consortium and SCE&G personnel as needed.
- Evaluate metrics on E&DCRs and N&Ds.
- Review schedules for LARs and ITAAC closure.
- Review representative ITAAC closure packages.
- Provide Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

### 4. Procurement

#### Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material.
- September 29 – Conducted follow-up meetings with CB&I Site Procurement to discuss data and reports on field procurement activity.
- September 2 – Attended meeting with CB&I on work packages.
- September 30 – Attended meeting with CB&I 1X4 Procurement Manager.
- October 1 – Attended meeting with CB&I Modules Procurement Manager.
- Reviewed ROYG Procurement Report.
- October 1 – Met with WEC to discuss ROYG reports and requested different sorts of reports.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

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Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted.
- Continue to analyze the ROYG report, interface with Project Controls on schedule.
- Hold follow-up meetings as required with CB&I & WEC Procurement.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

## 5. Project Controls

Activities Performed Last Week (September 28-October 2)

- Reviewed Reading Room material.
- Created revised Bechtel forecasted Unit 2 critical path for evaluation.
- Created bases and assumptions file for Bechtel forecasts.
- Evaluated multiple forecasts based upon productivity analysis.
- Finalized Bechtel version of Level 2 schedule for analysis reference.
- Created revised bulk and manpower curves based upon Bechtel forecasts.
- Created Unit 3 Level 2 schedule.
- Created combined Unit 2 and 3 craft manpower curves.
- Conducted internal review of preliminary schedule package and incorporated comments.
- September 30 – Attended Consortium commodity installation and manpower curves review.
- October 1 – Attended WEC Engineering schedule review.
- Prepared initial observations and recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 5-9)

- Continue review of documents in Reading Room as they are submitted.
- Update bases and assumptions file for Bechtel forecasts for Unit 3.
- Finalize Bechtel version of Level 2 Unit 3 schedule.
- Analyze Unit 2 and 3 bulk curves for stagger between units.
- Finalize combined Unit 2 and 3 craft manpower curves.
- Continue to prepare sections of Bechtel assessment report.
- Finalize schedule package for internal management review.
- Prepare additional observations and recommendations.
- Continue to prepare sections of Bechtel assessment report.

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**Bechtel Weekly Report**  
**V.C. Summer Units 2 & 3 Completion Assessment**  
**Week Ending October 9, 2015**

## 1. Project Management

### Activities Performed Last Week (October 5-9)

- October 9 – Met with CB&I Functional Operations Manager in Charlotte.
- Reviewed draft schedule, quantities, and sustained rates developed by Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

### Activities Planned This Week (October 12-16)

- Interview Santee Cooper personnel.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.
- Meet with Bechtel assessment team members to review draft report sections, observations and recommendations.
- Complete preparation of Bechtel draft report.

## 2. Construction

### Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material.
- October 7 – Attended Plan of the Day meeting.
- October 7 – Met with CB&I Lead Welding Engineer to discuss welding program.
- October 7 – Met with CB&I Human Resources Director to discuss non-manual turnover.
- October 7 – Met with CB&I Project Director to review some initial observations of construction effort.
- October 9 – Met with CB&I Industrial Relations Director to discuss recruiting of crafts.
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

### Activities Planned This Week (October 12-16)

- Review new material as it is posted to the Reading Room.
- Attend Plan of the Day meetings.
- Visit Craft Training trailer.
- Meet with CB&I Work Package planning personnel discuss work packaging, expected problems with electrical installations.
- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.



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**Week Ending October 9, 2015**

### 3. Engineering and Licensing

#### Activities Performed Last Week (October 5-9)

- Reviewed new material as it is posted to the Reading Room.
- Provided Engineering and Licensing schedule input to Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

#### Activities Planned This Week (October 12-16)

- Continue review of documents in Reading Room as they are submitted.
- Perform follow-up interviews with Consortium and SCE&G personnel as needed.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

### 4. Procurement

#### Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material.
- October 7 – Conducted follow-up meetings with CB&I Site Procurement to discuss data and reports on field procurement activity.
- Reviewed ROYG Procurement Report.
- October 7, 8, 9 – Met with WEC Deputy Project Manager to discuss ROYG reports and requested different sorts of the ROYG report.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.

#### Activities Planned This Week (October 12-16)

- Finalize observations and recommendations.
- Finalize input to Bechtel assessment report.

### 5. Project Controls

#### Activities Performed Last Week (October 5-9)

- Reviewed Reading Room material.
- Developed internal schedule package for review.
- Updated bases and assumptions to include Unit 3 addition to Level 2 schedule.
- Finalized Bechtel version of Level 2 schedule for analysis reference including Unit 3 forecasts.
- Conducted internal "Team Meeting" review and incorporated comments into overall schedule package.
- Decided on the separation duration between Unit 2 and 3 completion dates.
- Finalized Units 2 and 3 manpower curves.
- Created Unit 2 percent complete curves based on Bechtel forecast.
- October 9 – Met with CB&I Functional Operations Manager in Charlotte.

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- Created additional Observations and Recommendations.
- Prepared sections of Bechtel assessment report.

Activities Planned This Week (October 12-16)

- Continue to review documents in Reading Room as they are submitted.
- Finalize Bechtel version of Level 2 Unit 3 schedule.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

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**Bechtel Weekly Report**  
**V.C. Summer Units 2 & 3 Completion Assessment**  
**Week Ending October 16, 2015**

## **1. Project Management**

### Activities Performed Last Week (October 12-16)

- October 16 – Met with SCE&G CEO.
- Reviewed draft schedule, quantities, and sustained rates developed by Bechtel Project Controls.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared presentation to SCE&G and Santee Cooper executive management.

### Activities Planned This Week (October 19-23)

- October 22 – Presentation to SCE&G and Santee Cooper executive management.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

## **2. Construction**

### Activities Performed Last Week (October 12-16)

- October 13, 15 – Attended Plan of the Day meeting.
- October 13 – Met with CB&I work planning group to discuss electrical and pipe hanger installation challenges.
- October 13 – Met with CB&I training manager to discuss program and capabilities of the onsite training facility and staff.
- October 14 – Performed field walkdown.
- Conducted internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

### Activities Planned This Week (October 19-23)

- Conduct internal discussions on comparisons of VC Summer against Bechtel historical information on unit rates, schedule durations, quantities, manpower, etc.
- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

## **3. Engineering and Licensing**

### Activities Performed Last Week (October 12-16)

- October 14 – Performed field walkdown.
- Reviewed new material posted to the Reading Room.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

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Activities Planned This Week (October 19-23)

- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

**4. Procurement**

Activities Performed Last Week (October 12-16)

- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations.
- Finalize input to Bechtel assessment report.

**5. Project Controls**

Activities Performed Last Week (October 12-16)

- Reviewed Reading Room material.
- Developed internal schedule package for review.
- Prepared observations and recommendations.
- Prepared sections of Bechtel assessment report.
- Prepared input for presentation to SCE&G and Santee Cooper executive management.

Activities Planned This Week (October 19-23)

- Finalize observations and recommendations.
- Finalize sections of Bechtel assessment report.

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